INTERNATIONAL OPERATION MANAGEMENT: IT'S IMPORTANCE TO MALAYSIAN FIRMS

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ABSTRACT

Like any other country, Malaysia is characterized by a unique set of infrastructures, regulators, legal and economic conditions. Cheap labor coupled with a relatively stable economic and political climate has attracted Multinational Corporations (MNCs) to invest in Malaysia. As multinationals invest billions of dollars into Malaysia operations, it is essential that they design and manage systems that are congruent with the local needs.

This paper explores the logistics and international operation management and its importance to Malaysian firms. International operation management and logistics is important to the organizations or firms which engaged in export or import. The importance of international operation management in organizations includes the firms would be more flexible in innovative and responsive, the firms would provided quality goods and services and work to improve them, and the firms would be cost-efficient and keeps it resources productive.

INTRODUCTION

The emergence of a global marketplace, joint ventures with foreign firms, productions in far-flung nations, time-based competition, and greater customer orientation have all helped shape the increased emphasis on international operations management (IOM). Operations management is the management function that is

responsible for all the activities directly concerned with making a product. It is responsible for collecting various inputs and converting them into desired outputs.

International operations management is important to the Malaysian firms because it can bring many benefits and advantages. International operations management is also consist of chain management, production management and international services operations. Supply chain management is increasingly important since it is an indispensable element for success in operations. Traditionally, supply chain management focused on creating smooth links between departments and business units of a single company such as between purchasing and manufacturing. Today, it is focusing on how to optimize the supply chain strategies between firms and its suppliers and customers. Supply chain management is also include on how to obtain greater efficiencies in product development, sourcing, production and distribution which indicates that companies must interface more closely with suppliers and customers.

Organization used electronic links to improve supply chain performance. In today's fiercely competitive global environment, the application of customer systems and software to logistics and supply chain management is now seen as crucial to success in the marketplace, particular in technology platforms such as enterprise's resource planning (ERP) systems that are being implemented in order to support the material and manufacturing management and delivery information across the enterprise.

In international operations management, the focus is on production and materials management. Material management is the activity that controls the transmission of physical materials through the value chain, from procurement through production and into distribution. Material management also includes logistics, which refers to the procurement and physical transmission of material through the supply chain, from suppliers to customers. The manufacturing and materials management functions of an international firm have a number of important strategic objectives which includes to lower costs and increasing product quality by eliminating defective products from both the supply chain and the manufacturing process.

Logistics as "the design and operation of the physical, managerial, and informational systems needed to allow goods to overcome time and space". Another

definition promulgated by the Council of Logistics Management is the process of planning, implementing, and controlling the efficient, cost-effective flow and storage of raw materials, in-process inventory, finished goods and related information from point of origin to point of consumption for the purpose of conforming to customer requirements. Logistics management is vital not only to manufacturing and assembly industries, which are goods-oriented, but also to retailing, transport and other distribution or service-oriented industries.

International service operations are broadly interpreted as all activities in which a service is provided that results, in some cases, in actually changing customers (e.g. medical services and beauty services), and in other cases may be included during the production of a tangible good (e.g. industrial service and service factories).

OBJECTIVES

The objective of this study is to explore the logistics and international operation management and its importance to Malaysian firms.

LITERATURE REVIEW

According to Cheng (1988) and Hum and Ng (1995) examine the workings of Just in Time (JIT) systems in Hong Kong and Singapore, respectively. For example, the type of production, location of the multinationals headquarters, demands, supply base and the extent to which materials were either exported or imported affect inventory systems in Thailand. Infrastructure affects both the productivity and effectiveness of manufacturing companies. It has a direct impact on the distribution of raw materials, parts and finished goods to customers.

A study by Roth ET. Al., (1997), was core areas for research in international technology and operation management have recently been classified with manufacturing operations, strategic issues, global supply chains, location and facilities, productivity, design of human resource infrastructures, information systems, product and process development and global service operation. With the following areas, the organization or manufacturers can get more benefits from operations management.

With manufacturing operations, organizations or manufacturers can addresses issues in the management of international manufacturing, including coordinated

production planning and control systems, plant rationalization and benchmarking of performance. A strategic issue considers the development of competitive comparative advantage among global firms due to operations, especially the role that competitive capabilities and core competencies play.

According to Porter (1986), internationalization of activities has become a prerequisite for the continuity of many firms and must be included in the process of strategy formation. The international business literature recognizes that location choices that can be decisive for successful international operations. Because of the economic, marketing, finance perspective of these studies, location decisions are approached as an international investment decision. Location decisions are mainly related to market pressures (cost, proximity) and internalization (protection, competitive advantage,etc.). The features of decision-making concerning facility location and design of global operations networks are to ensure global integration of resources and local responsiveness. Location decisions are important and warrant management careful attention for several reasons. Three important reasons for care in the selection of facilities locations are as follows include competition, cost and hidden effects.

Based on competition, company's location affects its ability to compete and many other aspects of its operations. In manufacturing companies, location affects direct costs by influencing transportation costs to and from the facility as well as the cost of labor and many supplies used in the production process. In service operations, location can affect the demand for the services and the effectiveness of the entire operation. Location can also influence morale, employee, relations and public relations. Failures to make good location decisions are expensive and have long-lasting consequences. Decisions to purchase land and construct a building involve significant amounts of money; mistakes may be literally set in concrete. Time and effort spent in doing something wrong and then correcting it will never be recovered. Perhaps even more expansive –if less obvious-is the cost of making a poor location decision and not correcting it.

The effects of location are insidious. Since they are not directly observable, management must always be alert to the need to evaluate location. The cost of a poor location is an opportunity cost and therefore is hidden. No checks are written

for the opportunity costs; they do not show up in accounting reports. Consequently, it come to the attention of only those who periodically examine and critically evaluate operations.

In today's business environment it has become imperative that firms develop overseas production and distribution networks in order to compete globally. Companies are no longer restricted to use local suppliers for inputs and can seek out opportunities internationally to reduce costs, improve quality and innovate (Swamidass and Kotabe, 1992). Firms can expand their horizons by sourcing externally and globally. A number of underlying environmental factors will affect a company's propensity to source globally and externally, and correspondingly its inventory system. Inventory systems allow a firm to control its goods from the time they enter the organization as raw materials until the finished products are made available to the customers. A suitable inventory system can help an organization achieve a competitive advantage by reducing costs and lead times.

Doz, 1986; Encarnation and Wells, 1986, examination on international investment and operations, indicates that the impact of government policies appears to be significant. For example, export controls can have a major impact on the flow of products among subsidiaries in different countries. This construct is defined by borrowing measures from previous studies in international facility location. Bass *et al.* (1977) note the importance of gauging the impact of the corporate and personal tax structure, tax agreements, co-operation with foreign investors, and exchange controls. Doz (1986) and Encarnation and Wells (1986) underline the importance of tariffs, quotas or duties, and the presence of non-tariff barriers.

This construct refers to the availability of the required level of infrastructure for a firm to operate efficiently (Bass *et al.*, 1977). The required level of infrastructure is expected to vary with the type of product and country. The quality of infrastructure has a direct bearing on the facility location decisions and correspondingly on the inventory system. To measure this construct, the following items are utilized:

i) Adequacy of the roads and railroads.
ii) Adequacies of the communications.
iii) To what extent the wage rates are comparable to the industry average.
iv) Availability of suitable transportation services;

v) Adequacy of industrialization in the area

vi) Availability of employable labor

According Cohen et al., 1999, observed this two-class service system at Teradyne Inc., a leading semiconductor equipment manufacturer. Its products are testers, which are used as on-line equipment in capital-intensive manufacturing environments such as semiconductor fabrication facilities where equipment downtime is very expensive. While highly reliable, the testers are subject to random parts failure. In order to provide prompt service, the firm maintains parts inventory at several stocking centers throughout the world, and routinely uses rapid (next day or less) transportation service for parts delivery. Even with such prompt service, many users believe that it is too costly to them to let the testers wait for hours to receive the parts needed to complete machine repairs. As a result, many customers maintain their own inventory of selected spare parts on site.

In this environment, Teradyne realized that its traditional strategy of providing "gold standard" service (i.e., emergency service) alone to all of its customers is not appropriate. It therefore introduced a two-class service policy. While the non-emergency service is slower, it compensates customers with a substantially lower price. (A lower price charged to the non-emergency service is justified by the fact that a positive demand-lead-time allows the supplier to reduce the required inventory (safety-stock) level.) Customers have the flexibility to choose which class to use, based on their cost versus parts requirement tradeoff. Roughly speaking, a customer often uses the emergency service when a machine is broken and waiting for the part (in this case, either the customer does not hold on-site inventory or his on-site inventory has been depleted), or he may choose to use the non-emergency service when his order is for replenishing on-site inventory.

A standard model for a single location service parts system, where there exists only the emergency service class, has been solved elegantly through the observation of Scarf (1958) that the replenishment process is equivalent to an M/G/ inf queue. Palm (1938) states a theorem in which the steady-state number of customers in the queuing system (the customers here are the outstanding orders in the inventory system) is Poisson distributed with a mean equal to the arrival rate multiplied by the average service time. Then, based on the outstanding-order

distribution and the inventory balance equation (inventory level = base-stock level - outstanding orders), it is easy to derive performance characteristics of the system such as the distribution of the on-hand inventory and average customer waiting time, etc. Feeney and Sherbrooke (1966) extend this analysis to allow for compound Poisson arrivals. However, the standard modeling approach described above does not apply to our two-class service system. This follows because the standard inventory balance equation no longer holds due to the introduction of a non-zero demand-lead-time for the non-emergency class. The approach taken to analyze the transient behavior of the inventory level process directly, from which steady-state characteristics (such as expected on-hand inventory, customer waiting time distribution, availability service level, etc.) are derived. We then show that the two-class customers experience different service levels in the system.

There exists an extensive literature dealing with inventory systems with multiple demand classes, e.g., Ha (1997a, b), Nahmias and Demmy (1981), and Deshpande et al. (2000), and references therein. These deal with inventory rationing policies for satisfying demands that are based on different customer priorities. For example, Deshapand et al. analyze the case where the system stops satisfying low priority demands whenever the on-hand inventory drops below a certain reservation level. Such rationing policies are in a sharp contrast with our model, which differentiates demand/service classes based on delivery lead-time. They also develop system performance evaluations for the fixed base-stock policy for inventory replenishment and first-due-first-serve rule for inventory allocation among the two service classes, and then to optimize the system by choosing the policy parameter (i.e., the base-stock level).

Transportation is also very important, because logistics involves the movement of products (raw materials, parts, supplies, finished goods) from a point-of-origin to a point-of-consumption. There exist four flows in a logistics system. First, *material flow* is a flow of goods from their sources through the necessary processes, including storage, retrieval and delivery, then on to the customer with no unnecessary delays or costs. Second, *merchandise flow* contains marketing flows in the channel of distribution. It represents a transfer process of goods from manufacturers through wholesalers and/or retailers to customers. The difference between material flow

and merchandise flow is that the former is only to move goods from producers or suppliers to customers without considering the paths through which the ownership of goods passes on the way from suppliers to customers. Third, *money flow* involves pay in advance and funds' transfer, which can be handled by electronic fund transfer (EFT). Fourth, the linking of the desired information communicated among the members in the logistics channel constitutes *information flow*.

METHODOLOGY

The study was based on small and medium-sized enterprises (SMEs) in the Malaysian manufacturing sector listed in the Federation of Malaysian Manufacturer Directory,2001. The data was gathered from 30 small and medium-sized enterprises that export and import. The questionnaires were sent to firms in the 6 states by e-mailed. The items of the questions based on the important the logistics and international operations management in organization and benefits from the operations management.

The items were simple statements of concerns for which the participants were asked to indicate their opinions on a scale of "strongly agree to strongly disagree". Out of 42 questionnaires mailed, only 30 firms responded of the total instrument sent out. Based on the demographics of those firms, who participated in the study, there is no reason to believe that those firms who did not return the survey instrument are different from those who did. The survey were also conducted by using telephone interviews.

Survey Questionnaire

The structured survey questionnaire used in this study consisted of two sections and 12 simple questions. The 6 questions in section one to obtain information concerning the respondents' and the firms background. The balance 6 structured questions to gather information regarding the important of international operation management and it ranking to the firm concerned. The respondents were asked to rate each item on a five-point scale ranging from

(1) strongly disagree to (5) strongly agree. The questionnaire was tested prior to mailing to the respondents.

Background of the Sample Firms

As mention earlier, the data are collected from 6 states as we see in Table 1. A total of 5 industries were represented in this study as shown in Table 2, there are Wood, Machinery, Metal, Rubber and Plastic.

Table 1

Firms by the 6 states

State	No. of Companies	Percentage
Selangor	8	26.7
Penang	4	13.3
Johore	3	10.0
Kedah	3	10.0
Federal Territory	7	23.3
Melacca	5	16.7

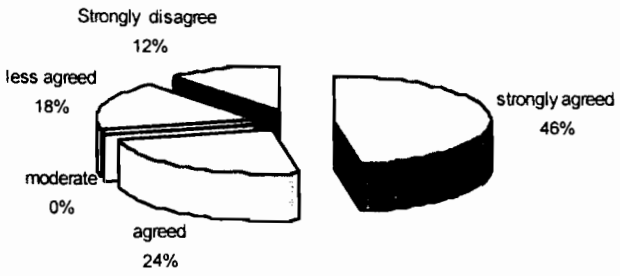
Table 2

Firms by Industries

Type of Industries	No. of Firms	Percentage
Wood	10	33.3
Machinery	6	20.0
Metal	4	13.3
Rubber	6	20.0
Plastic	4	13.4
Total	**30**	**100.0**

Table 3

Importance Of International Operation Management In Companies



RESEARCH FINDINGS

After processed the data , the findings of this study shows that 47.1 % of the respondents strongly agreed that International Operations Management (IOM) is very important to them . Result of study indicated that 23.5 % respondents agreed that International Operation Management important to the firms . On the other hand 17.6% said that IOM are less important while 11.8 % strongly agreed that IOM is not important to their firm . Beside that 0% of respondents answer moderate . This result can be simplified in Table 3 as below .

Table 4

Summary of Frequency Distribution on Important Factors of IOM

No.	Variables	Important	Uncertainty	Not Important
1	Knowledge of foreign channel distribution	82.4%	11.8%	5.8%
2	Product to meet foreign customer needs	82.4%	5.8%	11.8%
3	Logistic system in foreign country	76.4%	11.8%	11.8%
4	Understand the rules of Operation Management in foreign country	96.1%	0.0%	3.9%
5	High Cost of Selling Abroad	96.1%	3.9%	0.0%

As illustrate by Table 4 , the findings have indicate that 96.1% of the respondents stated that understanding the rules of operation management in foreign country and high cost of selling abroad are important factors of IOM, 82.4% of the respondents stated that knowledge of foreign channel distribution and product to meet foreign customers needs are the next important factors and the least important factor is the logistic system in foreign country.

In the survey, majority of the respondents has stated that:

1. Knowledge foreign channel distribution

Knowledge of foreign channel distribution is important in international operation management. In order to penetrate new market in foreign countries, suitable products and wide knowledge on foreign channels distribution are very important. By implementing these factors, the local firms which desire to expend business abroad might probably successfully engage in international business.

2. Product to meet foreign customers needs

Before decided to take part in international business, local firms should conduct a feasibility study to ensure that the products that is going to be exported to foreign countries would be accepted and could compete in foreign market.

3. Logistic System in foreign country

Logistic system consisted of the flow of material, merchandise, money, and information. What strategies should be applied in the logistics systems depend on the various common features such as diversified products, short order cycle times, shipping cost, high frequency and reliability of deliveries , customer service orientation , low stock level, rapid inventory turnover , and timely or accurate information. From the findings it had been stated that it is important for local firms to know and well verse in logistic system of foreign country before conducting business with them.

4. Understand the rules of Operation Management in foreign country

The finding shows almost all firms agreed that understanding the rules of operation management in foreign countries are important . This is because different countries have different regulations and rules regarding import and export. It is very difficult to understand the requirement of business procedures and regulations in foreign countries.

5. High Cost of Selling Abroad

From the findings, majority of the firms stated that the cost of capital increases as the firms invested in foreign country. Before exporting the products to foreign countries, numerous expenses has to be borne by the firms such as freight insurance, freight charges, custom duties and transportation cost. Some firms in the survey stated that they are reluctant to engage in IOM because the risks and the high cost of operations that would be borne by them.

Table 5

Ranking Importance of International Operation Management

No.	Variables	Means	Std.Deviations
1	Knowledge foreign channel distribution	4.3	0.89
2	Product to meet foreign customer needs	3.6	0.76
3	Logistics system in foreign country	4.6	0.92
4	Understand the rules of operation management in foreign country	4.2	0.77
5	High cost of selling abroad	3.2	0.68

Ranking Frequency

Table 5 shows that the ranking importance in terms of international operation management are:

1. Logistics system in foreign country.
2. Knowledge foreign channel distribution
3. Understand the rules of operation management in foreign country
4. Product to meet foreign customer needs
5. High cost of selling abroad

During the telephone interviews, majority of the respondents stated that the importance of the international operation management are:

i) The company would be more flexible, innovative and responsive.

Customers want products (goods or services) that incorporate the best features available for the amount of money that they are willing to spend. To suite the needs and demands of the customers, companies would be more flexible, innovative and responsive in marketing their product so that it could compete successfully in international business.

ii) The company must provide quality goods and services and work to improve them.

Customers want goods and services that are user-friendly and meet the needs for which they are intended to use or consume. Goods and services must be in highest quality to meet the demand of the customer. Firms will improve their product and services in order to maintain their competitive advantages and cost effectiveness.

iii) Can help firms to be cost-efficient and competitive

In order to be cost efficient and competitive, a company must keep its prices low compared to their competitors. Such strategies could attract more people to buy their products and to be competitive edge in the market.

iv) The firms could get more profits, market and customers

Engaging international business could bring more profit, customers and could expand businesses to foreign markets compared if the firms solely engage in domestic business.

CONCLUSIONS

This studies serves as stepping stone to larger investigations that might enable to formulate and test hypotheses relating to the international operation management factors that are importance to local firms to venture in international business. Based on the findings of this study , it can be concluded that in order to engage in international operation management, Malaysian export firms should be more flexible, innovative and responsive, cost-efficient and competitive, and should provide quality goods and services to the foreign market.

REFERENCES

Abdul Jumaat Mahajar, Muhammad Nasri Md. Husin (2000), *An Investigation Of The Internationalisation Of Malay Firms In Malaysia* ,ANALISIS 7(1&2),123-142,School Of Management, Universiti Utara Malaysia.

Bert Meijboom, Migon Houlepen. (2002). *Structuring International Service Operations*, vol. 22, pp 824-842.

Donald Waters. (1996). *Operations Management*, Addison-Wesley Publishing Company.

Globerman, S. (1986). *Fundamentals of International Business Management.* Englewood Cliffs, New Jersey: Prentice Hall.

Haug, Peter. (1990). *Book Review*, vol. 21, Issue 3, p 506.

Huan Neng Chiu. (1995). *The Integrated Logistics Management System: A Framework and Case Study*, vol.25, pp 4-22.

James B. Dilworth. (1993). *Production and Operations Management-Manufacturing and Services 4th Edition*, McGraw-Hill.

J.Andrew Pope, Sameer Prasad. (1998), *The Measurement of International Inventory Systems*, vol.11, pp 375-385.

Jongsuwanrak Wanida, Prasad, Sameer, Babbar, Sunil. (2001). *Inventory Systems of Foreign Companies In A Newly Industrialized Country.* Vol. 9, p47.

Lee J.Krajewski, Larry P. Ritzman. (2002). *Operations Management (6th edition)*, Prentice Hall.

Meredith, Jack, Roth, Aleda, (1998), *Operations Management In The USA*, vol. 18, issue 7, p 668.

Roy Westbrook. (1994). *Priority Management: New Theory for Operations Management.* Vol.14,pp 4-24.

William J. Stevenson. (1999). *Production Operations Management 6th Edition*, Irwin McGraw-Hill.

Yuanzeng Wang, Morris A Cohen, Yu Sheng Zheng. (2002). *Differentiating Customer Service On The Basis Of Delivery Lead Times*, vol. 34, issue 11.